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CLAIMS

[Utility model registration claim]

[Claim 1] The stop member which is the structure of attaching the trough which supplies a measured object to a weigh machine removable on vibration exciter, and has the stop section on the top face of the above-mentioned vibration exciter, While opening necessary spacing and arranging the lever member which was supported up and down by the pivot rotatable, and was energized upward by the energization member, in the inferior surface of tongue of the above-mentioned trough While preparing the 1st engagement pin which engages with the stop section of the above-mentioned stop member, and the 2nd engagement pin which depresses the above-mentioned lever member in connection with pushing of a trough from the condition of making this 1st engagement pin engaging with the stop section When the 2nd engagement pin is depressed exceeding the line which connects the 1st engagement pin and the pivot of the above-mentioned lever member Trough installation structure in the automatic metering installation characterized by establishing the crevice for a lock by which fitting is carried out while this 2nd engagement pin receives a pressure in the engagement direction of the above-mentioned 1st engagement pin in a lever member.

[Claim 2] The stop member which is the structure of attaching the trough which supplies a measured object to a weigh machine removable on vibration exciter, and has the stop section on the top face of the above-mentioned vibration exciter, While opening necessary spacing and arranging the lever member which was supported up and down by the pivot rotatable, and was energized upward by the energization member, in the inferior surface of tongue of the above-mentioned trough While preparing the 1st engagement pin which engages with the stop section of the above-mentioned stop member, and the 2nd engagement pin which depresses the above-mentioned lever member in connection with pushing of a trough from the condition of making this 1st engagement pin engaging with the stop section When the 2nd engagement pin is depressed exceeding the line which connects the 1st engagement pin and the pivot of the above-mentioned lever member The crevice for a lock by which fitting is carried out while this 2nd engagement pin receives a pressure in the engagement direction of the above-mentioned 1st engagement pin is established in a lever member. With covering the above-mentioned vibration exciter with a wrap Trough installation structure in the automatic metering installation characterized by preparing opening which makes the above-mentioned 1st and 2nd engagement pin insert in this covering from the outside of covering.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed explanation of a design]

[0001]

[Industrial Application] This design is related with the structure of attaching the trough for measured object supply in vibration exciter removable in an automatic metering installation.

[0002]

[Description of the Prior Art] What is known as a combination metering installation among automatic metering installations While supplying a measured object to two or more scale hoppers, respectively and detecting the weight of these measured objects By calculating by combining based on that weight value, searching for the optimal combination from which a combination aggregate value serves as target weight, and discharging and gathering only the measured object in measuring Popper applicable to this combination This measured object is measured in the above-mentioned target weight or the weight near this. After having arranged the trough for measured object supply usually supported around the distributed table at vibration exciter, respectively as structure for that, exciting a distributed table and a trough to predetermined timing, respectively, and supplying a measured object on a distributed table and distributing each trough, the structure sent into the above-mentioned scale hopper through a pool hopper from each trough is adopted. While preparing the positioning member of an order pair in the top face of vibration exciter in that case at JP,62-2508,Y and making a trough engage with a positioning member, the technique which clamps a trough and is fixed according to the toggle linkage with which the top face of the above-mentioned vibration exciter was equipped is indicated.

[0003] According to this, the trough to vibration exciter can be detached and attached by operating a toggle linkage by lever actuation.

[0004]

[Problem(s) to be Solved by the Device] However, disagreeable ***** which two procedures of the engaging-and-releasing actuation of a trough to the above-mentioned positioning member and lever actuation of a toggle linkage are required, and lacks in operability with the installation structure using the above-mentioned toggle linkage. Moreover, in the above-mentioned combination metering installation, to cover with covering said vibration exciter, stand, etc. which support a distributed table and a trough for the reason of protection against dust, or a design and others is desired. However, since the above-mentioned toggle linkage etc. is covered with covering, in order to detach and attach a trough, the complicated trouble which must remove covering one by one is needed, when this covering structure is used.

[0005] Then, this design offers a technical problem trough installation structure in the automatic metering installation which can perform the above-mentioned attachment and detachment, without being prevented by this covering, even if attachment and detachment of a trough were completed in one-touch control and it has covered vibration exciter etc. with covering.

[0006]

[Means for Solving the Problem] Namely, the design (the 1st design is called hereafter) concerning claim 1 of this design In the structure of attaching the trough which supplies a measured object to a weigh machine removable on vibration exciter It is supported up and down by the stop member which has the stop section on the top face of the above-mentioned vibration exciter, and the pivot rotatable. While opening necessary spacing and arranging the lever member energized upward by the energization member, and in the inferior surface of tongue of the above-mentioned trough While preparing the 1st engagement pin which engages with the stop section of the above-mentioned stop member, and the 2nd engagement pin which

depresses the above-mentioned lever member in connection with pushing of a trough from the condition of making this 1st engagement pin engaging with the stop section. When the 2nd engagement pin is depressed exceeding the line which connects the 1st engagement pin and the pivot of the above-mentioned lever member, while this 2nd engagement pin receives a pressure in the engagement direction of the above-mentioned 1st engagement pin, it is characterized by establishing the crevice for a lock by which fitting is carried out in a lever member.

[0007] Furthermore, the design (the 2nd design is called hereafter) concerning claim 2 is characterized by preparing opening which makes the above-mentioned 1st and 2nd engagement pin insert vibration exciter in this covering from the outside of covering with a wrap with covering.

[0008]

[Function] If a lever member is depressed by the 2nd engagement pin from the condition of having made the 1st engagement pin engaging with a stop member according to the 1st above-mentioned design. The 2nd engagement pin follows on descending exceeding the line which connects the 1st engagement pin and the pivot in a lever member, since fitting of this pin is carried out to the crevice for a lock established in the lever member in pressure, the return to the upper part of the 2nd engagement pin will be prevented, and a trough is fixed. Moreover, if the force of the raising direction is applied to a trough from this fixed condition, this force will overcome the fixed force, the 2nd engagement pin can pull up, and removal of a trough can be performed.

[0009] Furthermore, according to the 2nd design, since the 1st and 2nd engagement pins prepared in the trough engage with a stop member and a lever member through opening of covering, attachment and detachment of a trough can be performed, without being interfered by covering which has covered vibration exciter.

[0010]

[Example] Next, the example of this design is explained based on a drawing.

[0011] Drawing 1 shows the outline configuration of the combination metering installation concerning this design, and in this metering installation 1, while the distributed table 3 is arranged through the vibration exciter which is not illustrated on the central top face of a stand 2, two or more troughs 5 and 5 for measured object supply are arranged through vibration exciter 4 (shown in drawing 2) at the radial, respectively around this table 3. Moreover, while the injection chute which a measured object does not illustrate is prepared above the above-mentioned distributed table 3, it is located in the perimeter of the above-mentioned stand 2 at the point lower part of each troughs 5 and 5, two or more pool hoppers 6 and 6 are arranged, and the measuring hoppers 7 and 7 are further arranged under these pool hoppers 6 and 6, respectively.

[0012] That is, in this metering installation 1, after this measured object is supplied to the pool hoppers 6 and 6 a suitable amount every through each troughs 5 and 5 by carrying out excitation of the distributed table 3 and the troughs 5 and 5 to predetermined timing, and supplying a measured object on the distributed table 3 from the above-mentioned injection chute by vibration exciter, scale hoppers 7 and 7 are supplied from each pool hoppers 6 and 6. And the weight of each scale hopper 7 and the measured object in seven is detected, it combines about these weight values, an operation is performed, and the control asked for the optimal combination from which a combination aggregate value turns into a value nearest to this target weight in accordance with predetermined target weight is made.

[0013] By the way, in drawing 1, the vibration exciter part into which a metering installation 1 supports these except for the distributed table 3 and troughs 5 and 5 is covered with covering 8. In that case, where the body frame 10 which attached the vibration exciter body 9 is supported through the spring members 12 and 12 to a base plate 11, while the vibration exciter 4 for troughs is equipped on a stand 2, the trough support plate 13 is formed in the upper limit of the body frame 10. And the stop member 15 which is the top face of this support plate 13, and has the stop hole 14 in a distributed table 3 approach location is fixed. The stop hole 14 of this stop member 15 is presenting the hole configuration of the letter of the abbreviation for L characters which falls in the radiation direction (lever member side direction mentioned later) which deserts

member upper limit in the distributed table 3.

[0014] Moreover, while the guide slot 16 (refer to [drawing 3](#) and [drawing 4](#)) of the radiation direction is established in the top face of the above-mentioned support plate 13 to the distributed table 3 in the part distant from the distributed table 3 to the stop member 15. Openings 17 and 17 (refer to [drawing 3](#)) are established by the both sides which face across this guide slot 16, and the bearing block 18 is inserted in the direction which carries out distance to the guide slot 16 to the stop member 15 movable. It is made as [fix / in the location of the arbitration in the guide slot 16 / this bearing block 18] by concluding a bolt 20 to the bearing block 18 through the slot 19 prepared in a part for the guide slot of a support plate 13.

[0015] Between the above-mentioned bearing block 18 and the stop member 15, it has the reaction force sink stage 21. This reaction force sink stage 21 consists of a bolt 24 for backup attached in the angle-type member 23 fixed to the support plate 13 with bolts 22 and 22, and this angle-type member 23, and this bolt 24 for backup is fixed to the angle-type member 23 with an adjusting nut 25 and a locknut 26, where that tip is shown to spite the end face of the bearing block 18, as shown in [drawing 4](#) . In that case, when the location of the bearing block 18 is adjusted as mentioned above, adjustment migration is carried out and the bolt 24 for backup is also made to always **** a bolt tip to the bearing block 18 according to it.

[0016] Furthermore, the end of flat springs 27 and 27 is put and fixed between the angle-type member 23 as the above-mentioned reaction force sink stage 21, and a support plate 13. One pair of these flat springs 27 and 27 is prepared in the form which sandwiches the above-mentioned bearing block 18, while being located on the openings 17 and 17 which the other end of these flat springs 27 and 27 was prolonged in right and left of the bearing material 18, and were described previously, it pushes up to the other end top face of these flat springs 27 and 27, and projection 28 is attached.

[0017] on the other hand, the pivot 29 which penetrates this right and left carries out insertion support at the above-mentioned bearing block 18 — having — the both ends of this pivot 29 — the upper and lower sides — the lever members 30 and 30 are attached rotatable, respectively. In that case, the above-mentioned flat springs 27 and 27 push up, and it is located under the lever members 30 and 30, respectively, and this lever member is contacted, and by the force of flat springs 27 and 27, projections 28 and 28 make these lever members 30 and 30 the continuous-line location of [drawing 4](#) , and energize them. moreover, the lever members 30 and 30 — from a side face — seeing — abbreviation — two forks — while presenting a configuration and making pawl 30a by the side of the upper part shorter than pawl 30b by the side of the lower part, the crevice 31 for a lock is formed among both pawls. Furthermore, 2 ****s of the parts which let the pivot 29 pass in the above-mentioned bearing block 18 are carried out up and down, these pieces 18a and 18b of division are connected with the bolt nut 39 for adjustment, and it is made as [adjust / the retention span to a pivot 29] by changing the conclusion force of the pieces 18a and 18b of division with this bolt nut 39 for adjustment. In addition, the stopper bolt 32 which **** on the base of a trough 5 and positions this trough 5 is screwed on the top face of the bearing block 18.

[0018] While openings 33 and 34 are formed in the above-mentioned covering 8 in the upper part parts of the stop member 15 and the lever members 30 and 30, respectively and the stop member 15 and the lever members 30 and 30 are exposed out of covering through these covering openings 33 and 34, the upper limit of the above-mentioned stopper bolt 32 is projected through the covering opening 34 by the method of outside. And spacing which ****s to the die length which connects the stop member 15 and the lever member 30 to the inferior surface of tongue of a trough 5 is set, the 1st and 2nd engagement pin 35 and 36 hangs, and it is attached by members 37 and 38.

[0019] In addition, in vibration exciter 4, as shown in [drawing 2](#) , a bracket 40 is set up by the base plate 11, the stopper sections 41 and 42 of a vertical pair are formed in this bracket 40, and it lets the body frame 10 pass among these stopper sections 41 and 42, and is made as [regulate / by these stopper sections 41 and 42 / the vertical movement magnitude of the body frame 10].

[0020] Next, if installation of a trough 5 and a removal procedure are explained, after installation

of a trough 5 leans this trough 5 and makes the 1st engagement pin 35 engage with the stop hole 14 of the stop member 15 through the covering opening 34 as shown in drawing 5, it will depress [the 2nd engagement pin 36] the lever members 30 and 30 for the covering opening 34 by through and this pin 36. Although the vibration exciter 4 which supports the body frame 10 to the spring members 12 and 12 sinks at the time of this depression Since subduction beyond it is prevented by hitting the lower stopper section 42 of the stopper sections 41 and 42 which the body frame 10 described previously The above-mentioned depression force works certainly to the lever members 30 and 30 through the 2nd engagement pin 36 after it, and in the stopper bolt 32, the base of a trough 5 hits, it depresses, and these lever members 30 and 30 are rotated to a completion location. In that case, the flat springs 27 and 27 which pushed up the lever members 30 and 30 and were being energized in the direction permit rotation of the lever members 30 and 30 by bending caudad through the above-mentioned openings 17 and 17 prepared in the support plate 13.

[0021] By the way, it is the axis A (refer to the explanatory view of drawing 6.) which connects the 1st engagement pin 35 by which the 2nd engagement pin 36 is engaging with the stop member 15, and the pivot 29 which is supporting the lever members 30 and 30 at the above-mentioned depression completion time. however, in order that this explanatory view may make an understanding easy, it is exaggerated a little and drawn — **** — the location of a trough 5 is regulated with the above-mentioned stopper bolt 32 so that it may descend and stop to the location exceeding some include angles theta. Therefore, in case the 2nd engagement pin 36 exceeds Line A for the location of the bearing block 18 downward, while choosing it as the location which must depress a trough 5 by the force strong a little the retention span of the pivot 29 by the adjusting bolt 39 — the above, if the strong force acts If it chooses so that this pivot 29 may move to the reaction force sink stage 21 side a little to the bearing block 18 While the return to the upper part of the 2nd engagement pin 36 will be prevented when a pivot 29 carries out return migration if the 2nd engagement pin 36 exceeds Line A, and the 2nd engagement pin 36 receives a pressure in the engagement direction of the 1st engagement pin 35, fitting is carried out to the crevice 31 for a lock. Therefore, even if work exactly like a toggle linkage arises, and a trough 5 is fixed to the stop member 15 and the lever members 30 and 30 and vibration etc. is added, it is lost that this immobilization is canceled by the contingency.

[0022] moreover, it is made by that removal of a trough 5 pulls up a trough 5 in a reverse procedure 4. Also then, since the rise beyond it is lost in the up stopper section 41, body REMU 10 exceeds the above-mentioned line A upwards, the 2nd engagement pin 36 rotating the lever members 30 and 30 from the time, and it has immobilization solved [REMU] by this although vibration exciter 4 tends to be raised. Therefore, removal of a trough 5 can be performed by making a trough 5 incline forward next and extracting the 1st engagement pin 35 from the stop member 15.

[0023] Thus, since it can carry out in one-touch in installation of a trough 5, the depression actuation removal makes [actuation] two engagement pins 35 and 36 engage [actuation] with the stop member 15 and the lever members 30 and 30, and raising actuation and the above-mentioned installation and removal can be performed through the openings 33 and 34 of the covering 8 which has covered vibration exciter 4 while operability improves, it stops needing removal of covering 8 for attachment and detachment one by one, and operability improves further.

[0024] In addition, in the state of installation of a trough 5, as shown in drawing 2, the rubber 43 and 43 attached in the trough side shall be inserted in the covering openings 33 and 34, and the protection against dust and others of these covering openings 33 and 34 shall be performed.

[0025] In addition, it is good also as structure which turns the sense of the stop hole 14 in the 1st stop member 15 to the distributed table 3 side, and the lever member 30 rotates by the 1st stop member 15 side rather than a pivot 29 contrary to the example structure shown in a drawing as other example structures.

[0026]

[Effect of the Device] If a lever member is depressed by the 2nd engagement pin from the condition of having made the 1st engagement pin engaging with a stop member by the above

publication so that clearly according to the 1st design of this design The 2nd engagement pin follows on descending exceeding extension of the line which connects the 1st engagement pin and the pivot in a lever member. Since fitting of this pin is carried out to the crevice for a lock established in the lever member in pressure towards a pivot, **** flare support of the 2nd engagement pin will be carried out by the pivot, and the return to the upper part will be prevented, and a trough is fixed. Moreover, if the force of the raising direction is applied to a trough from this fixed condition, this force will overcome the fixed force, the 2nd engagement pin can pull up, and removal of a trough can be performed. Therefore, the attachment and detachment to vibration exciter can carry out by one-touch control, and operability improves. [0027] Furthermore, according to the 2nd design, since the 1st and 2nd engagement pins prepared in the trough engage with a stop member and a lever member through opening of covering, installation of a trough and removal can be performed, without being interfered by covering which has covered vibration exciter. Therefore, even if it has covered vibration exciter etc. with covering, attachment and detachment are possible, without needing removal of this covering, and operability improves further.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The schematic diagram of the combination metering installation concerning this design.

[Drawing 2] The enlarged drawing of the trough installation part in drawing 1 .

[Drawing 3] The important section top view in drawing 2 .

[Drawing 4] The side elevation of drawing 3 .

[Drawing 5] The explanatory view of a trough installation procedure.

[Drawing 6] The explanatory view of trough fixed actuation.

[Description of Notations]

4 Vibration Exciter

5 Trough

8 Covering

14 Stop Hole

15 Stop Member

27 Flat Spring

29 Pivot

30 Lever Member

31 Crevice for Lock

33 34 Covering opening

35 1st Engagement Pin

36 2nd Engagement Pin

[Translation done.]

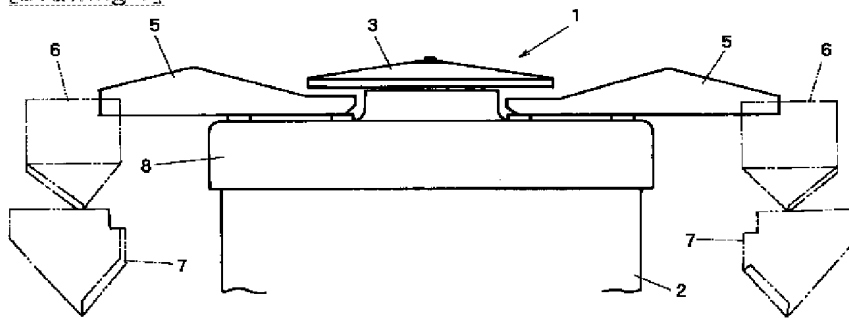
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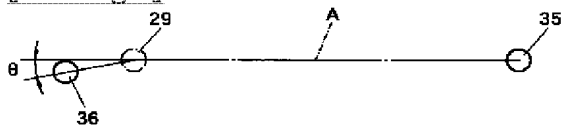
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DRAWINGS

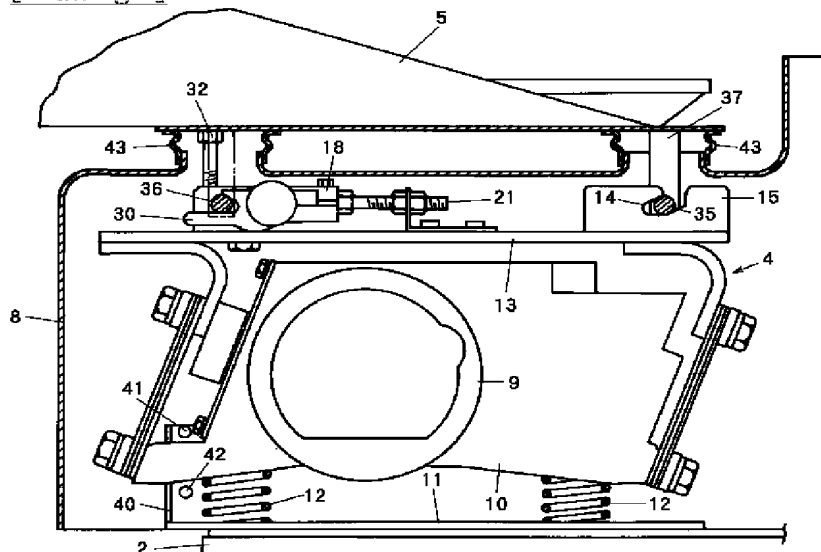
[Drawing 1]



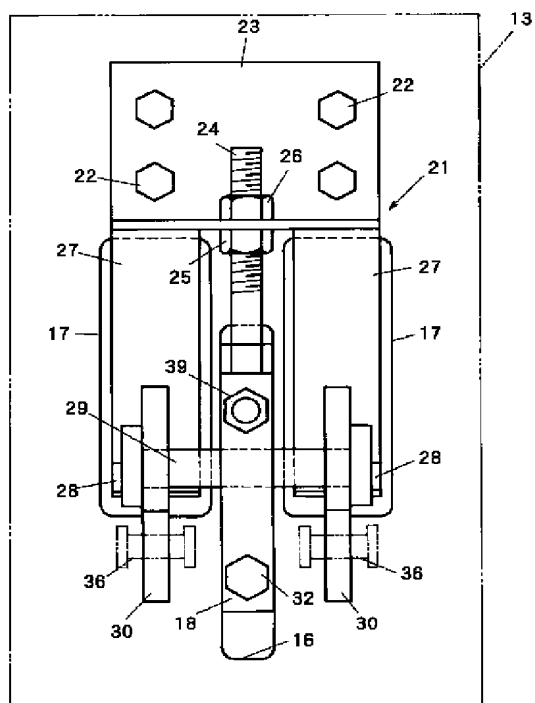
[Drawing 6]



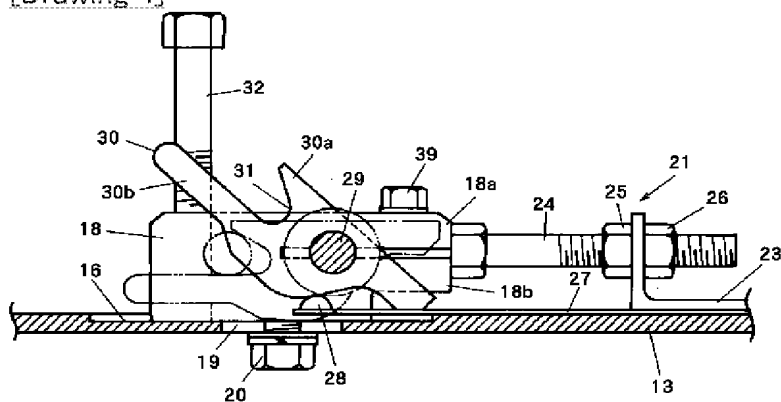
[Drawing 2]



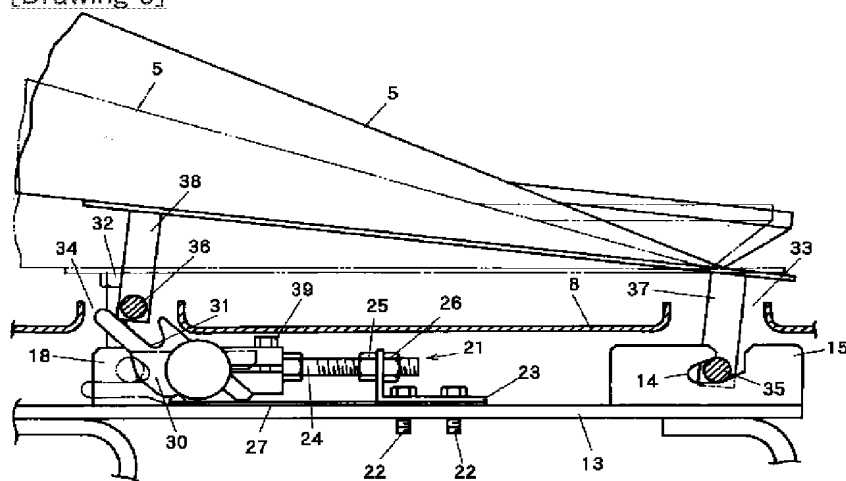
[Drawing 3]



[Drawing 4]



[Drawing 5]



[Translation done.]

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請求項の数2(全 6 頁)

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		(56) 参考文献	実開 昭63-135126 (J P, U)

(54) 【考案の名称】 自動計量装置におけるトラフ取り付け構造

1

【実用新案登録請求の範囲】

【請求項1】 計量機に被計量物を供給するトラフを加振機の上に着脱可能に取りつける構造であって、上記加振機の上面に、係止部を有する係止部材と、支軸によって上下に回動可能に支持され、かつ付勢部材により上向きに付勢されたレバー部材とを所要の間隔をあけて配置する一方、上記トラフの下面には、上記係止部材の係止部に係合される第1係合ビンと、該第1係合ビンを係止部に係合させている状態からトラフの押し込みに伴って上記レバー部材を押し下げる第2係合ビンとを設けると共に、第2係合ビンが第1係合ビンと上記レバー部材の支軸とを結ぶ線を超えて押し下げられるときに、該第2係合ビンが上記第1係合ビンの係合方向に圧力を受けながら嵌合されるロック用凹部をレバー部材に設けたことを特徴とする自動計量装置におけるトラフ取り付け構

2

造。

【請求項2】 計量機に被計量物を供給するトラフを加振機の上に着脱可能に取りつける構造であって、上記加振機の上面に、係止部を有する係止部材と、支軸によって上下に回動可能に支持され、かつ付勢部材により上向きに付勢されたレバー部材とを所要の間隔をあけて配置する一方、上記トラフの下面には、上記係止部材の係止部に係合される第1係合ビンと、該第1係合ビンを係止部に係合させている状態からトラフの押し込みに伴って上記レバー部材を押し下げる第2係合ビンとを設けると共に、第2係合ビンが第1係合ビンと上記レバー部材の支軸とを結ぶ線を超えて押し下げられるときに、該第2係合ビンが上記第1係合ビンの係合方向に圧力を受けながら嵌合されるロック用凹部をレバー部材に設け、かつ上記加振機をカバーによって覆うと共に、該カバーに上

記第1および第2係合ピンをカバー外から挿通させる開口部を設けたことを特徴とする自動計量装置におけるトラフ取り付け構造。

【考案の詳細な説明】

【0001】

【産業上の利用分野】本考案は、自動計量装置において被計量物供給用のトラフを加振機に着脱可能に取りつける構造に関する。

【0002】

【従来の技術】自動計量装置のうち、組み合わせ計量装置として知られているものは、複数の計量ホッパに被計量物をそれぞれ供給して、これらの被計量物の重量を検出すると共に、その重量値に基づいて組み合わせ演算を行って、組み合わせ加算値が目標重量となる最適組み合わせを求め、この組み合わせに該当した計量ホッパ内の被計量物のみを排出かつ集合させることにより、該被計量物を上記目標重量もしくはこれに近い重量に計量するものである。そのための構造として、通常は分散テーブルの周囲にそれぞれ加振機に支持された被計量物供給用のトラフを配置し、分散テーブルおよびトラフをそれぞれ所定のタイミングで加振して、被計量物を分散テーブル上に供給し、かつ各トラフに分散させたのち、各トラフからブルホッパを経て上記計量ホッパに送りこむ構造が採用される。その場合、たとえば実公昭62-2508号公報には、加振機の上面に前後一対の位置決め部材を設けて、位置決め部材にトラフに係合させると共に、上記加振機の上面に備えたトグル機構によってトラフをクランプして固定する技術が開示されている。

【0003】これによれば、レバー操作によってトグル機構を動かすことによって加振機に対するトラフの着脱が行えることになる。

【0004】

【考案が解決しようとする課題】ところが、上記のトグル機構を用いる取り付け構造では、上記位置決め部材に対するトラフの係脱操作と、トグル機構のレバー操作との2つの手順が必要であって、操作性に欠けるきらいがある。また、上記組み合わせ計量装置においては、防塵やデザインその他の理由によって、分散テーブルおよびトラフを支える前記加振機ならびに架台等をカバーにより覆うことが望まれる。しかし、該カバー構造を用いると、上記のトグル機構等もカバーに覆われるから、トラフを着脱するためにはいちいちカバーを取り外さねばならない煩雑な手数が要となる。

【0005】そこで、本考案はワンタッチ操作でトラフの着脱ができ、またカバーにより加振機等を覆っていても該カバーに阻害されることなく上記の着脱ができる自動計量装置におけるトラフ取り付け構造の提供を課題とする。

【0006】

【課題を解決するための手段】すなわち、本考案の請求

項1にかかる考案（以下、第1考案と称す）は、計量機に被計量物を供給するトラフを加振機の上面に着脱可能に取りつける構造において、上記加振機の上面に、係止部を有する係止部材と、支軸によって上下に回動可能に支持され、かつ付勢部材により上向きに付勢されたレバー部材とを所要の間隔をあけて配置する一方、上記トラフの下面には、上記係止部材の係止部に係合される第1係合ピンと、該第1係合ピンに係止部に係合させている状態からトラフの押し込みに伴って上記レバー部材を押し下げる第2係合ピンとを設けると共に、第2係合ピンが第1係合ピンと上記レバー部材の支軸とを結ぶ線を超えて押し下げられるときに、該第2係合ピンが上記第1係合ピンの係合方向に圧力を受けながら嵌合されるロック用凹部をレバー部材に設けたことを特徴とする。

【0007】さらに、請求項2にかかる考案（以下、第2考案と称す）は、加振機をカバーによって覆うと共に、該カバーに上記第1および第2係合ピンをカバー外から挿通させる開口部を設けたことを特徴とする。

【0008】

【作用】上記の第1考案によれば、第1の係合ピンに係止部材に係合させた状態から第2の係合ピンによってレバー部材を押し下げれば、第1係合ピンとレバー部材における支軸とを結ぶ線を超えて第2係合ピンが下降するに伴い、該ピンがレバー部材に設けられているロック用凹部に圧力的に嵌合されるから、第2係合ピンの上方への戻りが阻止されることになってトラフが固定される。また、該固定状態からトラフに引き上げ方向の力を加えれば、該力が固定力に打ち勝って第2係合ピンが引き上げられ、トラフの取り外しができることになる。

【0009】さらに、第2考案によれば、トラフに設けられている第1および第2の係合ピンがカバーの開口部を通して係止部材ならびにレバー部材に係合されるようになっているから、加振機を覆っているカバーに邪魔されることなくトラフの着脱ができることになる。

【0010】

【実施例】次に、本考案の実施例を図面にに基づき説明する。

【0011】図1は本考案にかかる組み合わせ計量装置の概略構成を示し、この計量装置1においては、架台2の中央上面に図示しない加振機を介して分散テーブル3が配置されると共に、該テーブル3の周囲にそれぞれ加振機4（図2に示す）を介して複数の被計量物供給用トラフ5、5が放射状に配置されている。また、上記分散テーブル3の上方には被計量物の図示しない投入シュートが設けられると共に、上記架台2の周囲に、各トラフ5、5の先端部下方に位置して複数のブルホッパ6、6が配置され、さらにこれらのブルホッパ6、6の下方にそれぞれ計量ホッパ7、7が配置される。

【0012】すなわち、この計量装置1においては、加振機によって分散テーブル3ならびにトラフ5、5を所

定のタイミングで加振させて、前述の投入シュートから分散テーブル3上に被計量物を供給することによって、該被計量物が各トラフ5、5を介しブールホッパ6、6に適量ずつ供給されたのち、各ブールホッパ6、6から計量ホッパ7、7に供給される。そして、各計量ホッパ7、7内の被計量物の重量が検出され、これらの重量値についての組み合わせ演算が行われ、組み合わせ加算値が所定の目標重量に一致し、あるいは該目標重量にもっとも近い値となる最適組み合わせが求められる制御がなされる。

【0013】ところで、図1において、計量装置1は分散テーブル3およびトラフ5、5を除いてこれらを支持する加振機部分がカバー8で覆われる。その場合、トラフ用の加振機4は、加振機本体9を取りつけた本体フレーム10を台板11にバネ部材12、12を介して支持した状態で架台2上に装備されると共に、本体フレーム10の上端にトラフ支持板13が設けられる。そして、この支持板13の上面で、かつ分散テーブル3寄り位置に係止穴14を有する係止部材15が固定される。該係止部材15の係止穴14は部材上端から分散テーブル3とは離反する放射方向（後述するレバー部材側方向）に下がる略し字状の穴形状を呈している。

【0014】また、上記支持板13の上面には係止部材15に対して分散テーブル3よりも離れた部位において、分散テーブル3に対し放射方向のガイド溝16（図3および図4参照）が設けられると共に、該ガイド溝16を挟む両側に開口部17、17（図3参照）が開設され、ガイド溝16に係止部材15に対し遠近する方向に移動可能に軸受けブロック18が嵌入され、支持板13のガイド溝部分に設けている長穴19を通してボルト20を軸受けブロック18に締結することによって該軸受けブロック18がガイド溝16中の任意の位置で固定されるようになされている。

【0015】上記軸受けブロック18と係止部材15との間には反力受け手段21が備えられる。この反力受け手段21は支持板13にボルト22、22で固定したアングル部材23と該アングル部材23に取りつけたバックアップ用ボルト24とからなり、該バックアップ用ボルト24がその先端を図4に示すように軸受けブロック18の端面に当てつけた状態で調整ナット25およびロックナット26によりアングル部材23に固定される。その場合、軸受けブロック18の位置を前述のように調整した場合、それに合わせてバックアップ用ボルト24も調整移動させて、ボルト先端を常に軸受けブロック18に接当させておくものとする。

【0016】さらに、上記の反力受け手段21としてのアングル部材23と支持板13の間には板バネ27、27の一端が挟み込んで固定される。この板バネ27、27は前述の軸受けブロック18を挟む形で一對設けられており、これら板バネ27、27の他端が軸受け部材

18の左右に延びて先に述べた開口部17、17の上に位置されると共に、これら板バネ27、27の他端上面に押し上げ突起28が取り付けられる。

【0017】一方、上記の軸受けブロック18にはこれを左右に貫通する支軸29が挿通支持され、該支軸29の両端に上下回動可能にそれぞれレバー部材30、30が取り付けられる。その場合、上記の板バネ27、27の押し上げ突起28、28はそれぞれレバー部材30、30の下方に位置して該レバー部材に接触し、板バネ27、27の力でこれらレバー部材30、30を図4の実線位置に押し上げ付勢する。また、レバー部材30、30は側面から見て略二股形状を呈し、上部側の爪30aが下部側の爪30bよりも短くされると共に、両爪の間にロック用凹部31が形成されている。さらに、上記軸受けブロック18においては支軸29が通されている部分が上下に2分割され、これらの分割片18a、18bが調整用ボルト・ナット39によって連結され、該調整用ボルト・ナット39による分割片18a、18bの締結力を変えることによって支軸29に対する把持力を調整できるようになされている。加えて、軸受けブロック18の上面には、トラフ5の底面に接当して該トラフ5を位置決めするストッパボルト32が螺着される。

【0018】前述のカバー8には、係止部材15およびレバー部材30、30の上方部分において開口部33、34がそれぞれ設けられ、これらカバー開口部33、34を通して係止部材15およびレバー部材30、30がカバー外に露呈されると共に、上述のストッパボルト32の上端がカバー開口部34を通して外方に突出されている。そして、トラフ5の下面に係止部材15とレバー部材30とを結ぶ長さに相応する間隔を以て第1と第2の係合ピン35、36が吊り下げ部材37、38によって取り付けられる。

【0019】なお、加振機4においては、図2に示すように台板11にブラケット40が立設され、このブラケット40に上下一対のストッパ部41、42が設けられ、これらストッパ部41、42の間に本体フレーム10が通されており、これらストッパ部41、42によって本体フレーム10の上下移動量が規制されるようになされている。

【0020】次に、トラフ5の取り付け、および取り外し手順を説明すると、トラフ5の取り付けは図5に示すように該トラフ5を傾けて第1係合ピン35をカバー開口部34を通して係止部材15の係止穴14に係合させたのち、第2係合ピン36をカバー開口部34を通して、該ピン36によってレバー部材30、30を押し下げる。この押し下げ時、バネ部材12、12に本体フレーム10を支えられている加振機4は沈むが、本体フレーム10が先に述べたストッパ部41、42のうちの下部ストッパ部42に当たることによってそれ以上の沈み込みが阻止されるので、それ以後上記押し下げ力が第2係

合ピン36を介しレバー部材30、30に確実に働き、ストップボルト32にトラフ5の底面が当たる押し下げ完了位置まで該レバー部材30、30を回動させる。その場合、レバー部材30、30を押し上げ方向に付勢していた板バネ27、27は支持板13に設けられている前述の開口部17、17を通して下方に撓むことにより、レバー部材30、30の回動を許容する。

【0021】ところで、上記押し下げ完了時点では、第2係合ピン36は、係止部材15に係合している第1係合ピン35とレバー部材30、30を支持している支軸29とを結ぶ軸線A（図6の説明図参照。但し、該説明図は理解を容易にするため若干誇張して描いている）を少しの角度 θ を超える位置まで下降して停止するように上述のストップボルト32によってトラフ5の位置が規制される。したがって、軸受けブロック18の位置を、第2係合ピン36が線Aを下に超える際に若干強い力でトラフ5を押し下げねばならないような位置に選ぶと共に、調整ボルト39による支軸29の把持力を上記強い力が作用すれば、該支軸29が軸受けブロック18に対して若干反力受け手段21側に移動するように選んでお

けば、線Aを第2係合ピン36が超えると、支軸29が復帰移動することによって第2係合ピン36の上方への戻りが阻止されると共に、第2係合ピン36が第1係合ピン35の係合方向に圧力を受けながらロック用凹部31に嵌合される。したがって、ちょうどトグル機構のような働きが生じ、トラフ5は係止部材15およびレバー部材30、30に固定され、また振動等が加わっても該固定が不測に解除されることがなくなる。

【0022】また、トラフ5の取り外しは逆の手順でトラフ5を引きあげることによなされる。そのときも、加振機4は持ち上げられようとするが、本体レーム10が上部ストップ部41に当たってそれ以上の上昇がなくなるから、その時点から第2係合ピン36はレバー部材30、30を回動させつつ前述の線Aを上へ超え、これによって固定を解かれる。したがって、次にトラフ5を前傾させて第1係合ピン35を係止部材15から抜き出すことによってトラフ5の取り外しができることになる。

【0023】このように、トラフ5の取り付け、取り外しが2つの係合ピン35、36を係止部材15およびレバー部材30、30に係合させる押し下げ動作、引き上げ動作でワンタッチ的に行えるから、操作性が向上すると共に、加振機4を覆っているカバー8の開口部33、34を通して上記の取り付け、取り外しができるので、着脱にいちいちカバー8の取り外しを必要としなくなり、一層操作性が向上する。

【0024】なお、トラフ5の取り付け状態では、図2に示すようにカバー開口部33、34にトラフ側に取り付けているラバー43、43を嵌めて、該カバー開口部33、34の防塵その他を行うものとする。

【0025】なお、他の実施例構造として、図面に示す実施例構造とは反対に、第1係止部材15における係止穴14の向きを分散テーブル3側に向け、かつレバー部材30が支軸29よりも第1係止部材15側で回動する構造としてもよい。

【0026】

【考案の効果】以上の記載によって明らかなように、本考案の第1考案によれば、第1の係合ピンを係止部材に係合させた状態から第2の係合ピンによってレバー部材を押し下げれば、第1係合ピンとレバー部材における支軸とを結ぶ線の延長を超えて第2係合ピンが下降するに伴い、該ピンがレバー部材に設けられているロック用凹部に支軸に向けて圧力的に嵌合されるから、第2係合ピンが支軸によって引っ張り支持され、かつ上方への戻りが阻止されることになってトラフが固定される。また、該固定状態からトラフに引き上げ方向の力を加えれば、該力が固定力に打ち勝って第2係合ピンが引き上げられ、トラフの取り外しができることになる。したがって、加振機に対する着脱がワンタッチ操作で行えることになり、操作性が向上する。

【0027】さらに、第2考案によれば、トラフに設けられている第1および第2の係合ピンがカバーの開口部を通して係止部材ならびにレバー部材に係合されるようになっているから、加振機を覆っているカバーに邪魔されることなくトラフの取り付け、取り外しができることになる。したがって、加振機等をカバーによって覆っていても、該カバーの取り外しを必要とすることなく着脱ができ、一層操作性が向上する。

【図面の簡単な説明】

【図1】 本考案にかかる組み合わせ計量装置の概略図。

【図2】 図1におけるトラフ取り付け部分の拡大図。

【図3】 図2における要部平面図。

【図4】 図3の側面図。

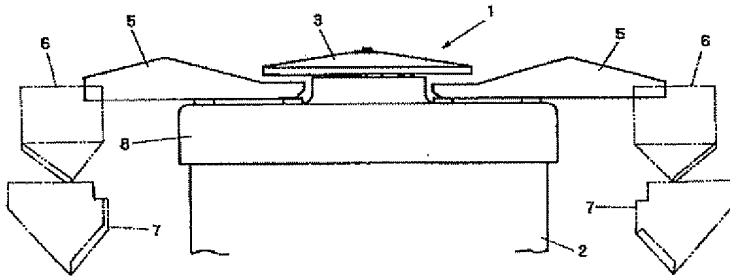
【図5】 トラフ取り付け手順の説明図。

【図6】 トラフ固定動作の説明図。

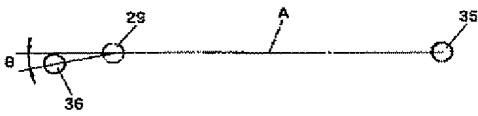
【符号の説明】

4	加振機
5	トラフ
8	カバー
14	係止穴
15	係止部材
27	板バネ
29	支軸
30	レバー部材
31	ロック用凹部
33、34	カバー開口部
35	第1係合ピン
36	第2係合ピン

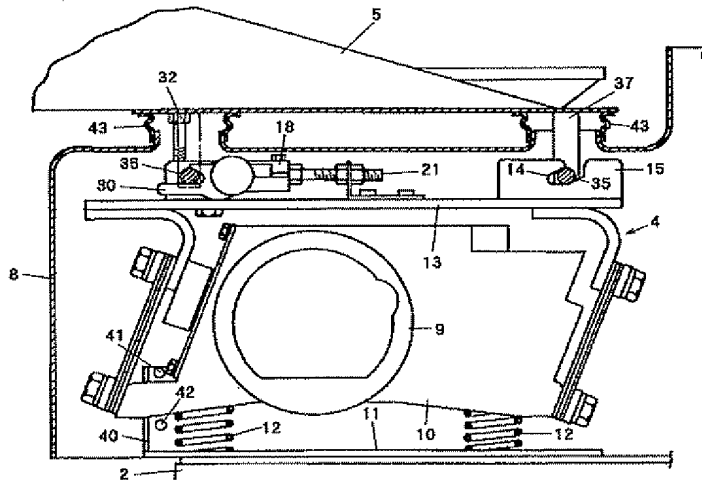
【図1】



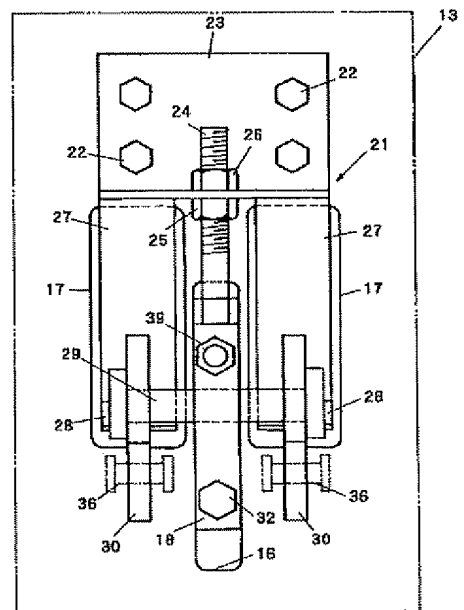
【図6】



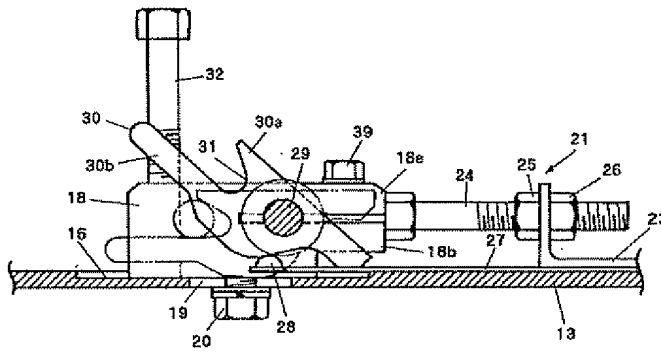
【図2】



【図3】



【図4】



【図5】

